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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,526	08/30/2005	Manoranjan Misra	40-02	8889
23713 7590 02/12/2008 GREENLEE WINNER AND SULLIVAN P C 4875 PEARL EAST CIRCLE SUITE 200 BOULDER, CO 80301				
EXAMINER HRUSKOCI, PETER A				
ART UNIT		PAPER NUMBER		
1797				
MAIL DATE		DELIVERY MODE		
02/12/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/510,526

**Applicant(s)**

MISRA ET AL.

**Examiner**

Peter A. Hruskoci

**Art Unit**

1797

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 31-34 and 36-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 and 35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misra et al. 6,197,201 in view of JP publication 2001340873A Miyama. Misra et al. disclose (see col. 4 line 4 through col. 6 line 42, and col. 11 lines 18-37) a method for removing arsenic from arsenic containing water substantially as claimed. The claims differ from Misra et al. by reciting that the composition comprises a metal salt hydroxide-gel. It is submitted that the composition formed in the water of Misra et al. appears to include a gelatinous precipitate of lanthanum and ferric hydroxides, which is considered indistinguishable from the recited metal salt hydroxide-gel. Miyama disclose (see Abstract) that it is known in the art to utilize a gel-like material in which an iron hydroxide precipitate is fixed, to aid in removing arsenic from water. It would have been obvious to one skilled in the art to modify the method of Misra et al. by utilizing the recited composition in view of the teachings of Miyama, to aid in removing arsenic from water.

Claims 4, 5, 8, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misra et al. 6,197,201 in view of JP publication 2001340873A Miyama as above, and further in view of Wang et al. 5,064,531. The claims differ from the references as applied above by reciting the use of a DE coated filter, or a diatomaceous earth filter. Wang et al. disclose (see col. 2 line 50 through col. 3 line 26) that it is known in the art to utilize a diatomaceous earth

filter to aid in removing contaminants from water. It would have been obvious to one skilled in the art to modify the references as applied above, by utilizing the recited filters in view of the teachings of Wang et al., to aid in separating water from the composition.

Claims 6, 7, 15-23, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Misra et al. 6,197,201 in view of JP publication 2001340873A Miyama and Wang et al. as above, and further in view of Mills 5,683,953. The claims differ from the references as applied above by reciting the use of a DE filter bed, or DE coated hydroxide gels. Mills disclose (see col. 4 line 56 through col. 8 line 28) that it is known in the art to utilize a diatomaceous earth filter bed, and a composition including diatomaceous earth, aluminum hydroxide, and lanthanum chloride, to aid in filtering water, and in removing contaminants such as dissolved phosphate from water. It would have been obvious to one skilled in the art to modify the method the references as applied above by utilizing the recited filter bed and composition in view of the teachings of Mills, to aid in filtering water, and in separating dissolved contaminants from the water. The specific concentration, contact time, pH, and weight ratios utilized, would have been an obvious matter of process optimization to one skilled in the art, depending on the specific water treated and results desired, absent a sufficient showing of unexpected results.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farrah 5,432,077 in view of JP publication 2001340873A Miyama. Farrah disclose (see col. 3 line 52 through col. 5 line 48) a method for removing heavy metals from heavy metal-containing solution substantially as claimed. The claim differs from Farrah by reciting that the solution is contacted with a metal salt hydroxide-gel. It is submitted that the adsorptive material utilized in Farrah appears to include ferric and aluminum hydroxides which are considered to be

Art Unit: 1797

indistinguishable from the recited metal salt hydroxide-gel. Miyama disclose (see Abstract) that it is known in the art to utilize a gel-like material in which an iron hydroxide precipitate is fixed, to aid in removing heavy metals from water. It would have been obvious to one skilled in the art to modify the method of Farrah by utilizing the recited composition in view of the teachings of Miyama, to aid in removing heavy metals from water.

Claims 28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrah in view of JP publication 2001340873A Miyama as above, and further in view of Misra et al. 6,197,201. It is noted that Farrah disclose the use of a diatomaceous earth adsorbent material. The claims differ from the references as applied above, by reciting that the metal salt hydroxide-gel comprises lanthanum and iron. Misra et al. disclose (see col. 4 line 4 through col. 6 line 42, and col. 11 lines 18-37) that it is known in the art to utilize a gelatinous precipitate of lanthanum and ferric hydroxides, to aid in removing arsenic and selenium for water. It would have been obvious to one skilled in the art to modify the references as applied above, by utilizing the recited metal salt hydroxide-gel in view of the teachings of Misra et al., to aid in removing heavy metals from water.

Claims 29 and 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farrah in view of JP publication 2001340873A Miyama as above, and further in view of Mills 5,683,953. The claim differs from the references as applied above by reciting the use of a specific DE filter bed. Mills disclose (see col. 4 line 56 through col. 8 line 28) that it is known in the art to utilize a diatomaceous earth filter bed, to aid in filtering water, and in removing contaminants such as dissolved phosphate from water. It would have been obvious to one skilled in the art to modify the references as applied above, by utilizing the recited filter bed in view of

the teachings of Mills, to aid in filtering water, and in separating dissolved contaminants from the water.

Applicants allege that the direct precipitation method of Misra et al. leaves a large amount of anions (from the salt) in the water, and these anions are toxic to humans and must be removed. It is submitted that the direct precipitation method of Misra et al. is not excluded from the instant claims. Furthermore, it is submitted that applicant has not presented sufficient evidence of the disadvantages of the direct precipitation method of Misra et al. to support the above allegation.

Applicants allege that the JP publication Miyama does not provide an enabling disclosure that would allow one skilled in the art to make the “gel-like material”, and therefore is not operative, and should not be cited in the current rejections. It would have been obvious to one skilled in the art of water treatment having the teachings of Misra et al. and Miyama before him, that the gel-like material including the iron hydroxide as disclosed in Miyama can be formed by the mixing of iron salts with hydroxides as in the method of Misra et al. and the instant method. Furthermore, applicants have not presented sufficient factual evidence to support the above allegation.

Applicants argue that the claims of the current invention require a metal salt hydroxide gel defined on page 4 of the specification as lanthanum hydroxide optionally combined with other metal hydroxides. It is submitted that this definition of the metal salt hydroxide gel is not recited in the instant claims. It is further submitted that precipitated solids disclosed in col. 11 of Misra et al. include ferric hydroxide and lanthanum hydroxide, and are gelatinous. Furthermore,

Miyama as applied above disclose that it is known in the art to utilize a gel-like material in which an iron hydroxide precipitate is fixed, to aid in removing arsenic from water.

Applicants argue that there is no suggestion or motivation to combine the teachings of Misra with Miyama and Wang, and there is no expectation of success in such a combination, since the removal of arsenic is a different problem than the removal of other substances. It is submitted that the teachings of Wang et al. as applied above, would provide one skilled in the art with sufficient suggestion to utilize a diatomaceous earth filter to successfully aid in removing contaminants such as the precipitated solids and compounds produced in Misra et al. from water. Furthermore, applicants have not presented sufficient factual evidence to support the above argument.

Applicants argue that the treatment of swimming pool water as in Mills is a completely different process than the treatment of drinking water, and one skilled in the art who is developing a process for removing arsenic from drinking water would not look to art directed to removing phosphates from swimming pool water. It is submitted that the teachings of Misra et al., Miyama, and Mills, and the instant method are all drawn to the analogous art of water treatment. Furthermore, the instant claims do not appear to be limited to the treatment of drinking water.

Applicants argue that the teachings of Farrah would not produce a hydroxide gel, and one skilled in the art attempting to solve the problem of removing arsenic from drinking water, would not look to the teaching of Farrah, which are directed to enhancing the absorptive capacity of an absorbent material. It is submitted that the absorbent materials of Farrah include metal hydroxides, and these materials may be used in the filtration of water supplies, to aid in

removing metal cations. It is noted that instant claim 27 fails to recite a step for removing arsenic from drinking water. Furthermore, applicants have not presented sufficient factual evidence to support the above argument.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter A. Hruskoci whose telephone number is (571) 272-1160. The examiner can normally be reached on Monday through Friday from 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter A. Hruskoci  
Primary Examiner  
Art Unit 1797

2/8/08

/Peter A. Hruskoci/

**Application Number****Application/Control No.**

10/510,526

**Applicant(s)/Patent under  
Reexamination**

MISRA ET AL.

**Examiner**

Peter A. Hruskoci

**Art Unit**

1797